

CLAIMS

1. A method for generating a virtual anatomic environment (4) for use in a computer based visual simulation of minimally invasive surgery, comprising the steps of:

providing a main virtual anatomic environment (1),
selecting a local anatomic environment (2) from a predefined library (3) comprising a set of two or more separately modelled local anatomic environments (2),
including the selected local anatomic environment (2) in said main anatomic environment (1) to form said virtual anatomic environment (4),
thereby allowing generation of different virtual environments.

2. A method according to claim 1, wherein said set of local anatomic environments (2) is arranged to represent a set of anatomic variations for a critical internal area, occurring in living beings.

3. A method according to claim 1 or 2, wherein the step of selecting a local anatomic environment (2) from a predefined library (3) comprising two or more of simulated local anatomic environments (2) further comprises the step of randomly selecting one of the local anatomic environments (2) in the library (3).

4. A method according to claim 3, wherein the probability of randomly selecting a certain local anatomic environment (2) essentially corresponds with the degree of occurrence of that local anatomic environment in living beings.

5. A method according to any one of the preceding claims, wherein the main virtual anatomic environment (1) is arranged to model an internal cavity (5) of a human,

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such as an abdominal cavity or a chest cavity, while the set of local anatomic environments is arranged to simulate different arrangements of arteries, veins and ducts (7) around an organ (6) arranged in said internal cavity (5), such as a gall bladder or a heart.

6. A method according to any one of the claims 1-2 or 5, further comprising the step of selecting, by means of user selection, a certain one of said local anatomic environments (2) from said library (3) and including it into said main virtual environment (1).

7. A device for generating a virtual anatomic environment (4) for use in a computer based visual simulation of minimally invasive surgery, comprising:

a modelling device (15) for providing a main virtual anatomic environment (1),

a library (3), comprising a set of two or more separately modelled local anatomic environments (2),

means for incorporating one of the local anatomic environments (2) of the library (3) into the main virtual anatomic environment (1), together forming said virtual anatomic environment (4),

thereby allowing generation of different virtual environments.

8. A device according to claim 7, further comprising a selection device (9) for selecting one of said local anatomic environments (2) from said library (3) to be included in said main anatomic environment.

9. A device according to claim 8, wherein the selection device (9) is arranged to randomly select one of said local anatomic environments (2) from said library (3) to be included in said main anatomic environment.

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10. A device according to claim 9, wherein the selection device (9) is arranged to randomly select one of said local anatomic environments (2) in such a way that the probability of selecting a certain local anatomic environment (2) essentially corresponds with the degree of occurrence of that local anatomic environment in human beings.

11. A device according to any one of the claims 7-10, wherein the main virtual anatomic environment (1) is arranged to model an internal cavity (5) of a human, such as an abdominal cavity or a chest cavity, while the set of local anatomic environments (2) is arranged to simulate different arrangements of arteries, veins and ducts (7) around an organ (6) arranged in said internal cavity (5), such as a gall bladder or a heart.

12. A computer-based minimal-invasive surgery simulation system, comprising a device for generating a virtual anatomic environment as described in any one of the claims 7-11.

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